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Hamilton

Department of Engineering

May 1973

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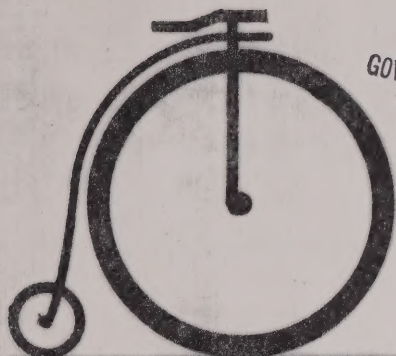
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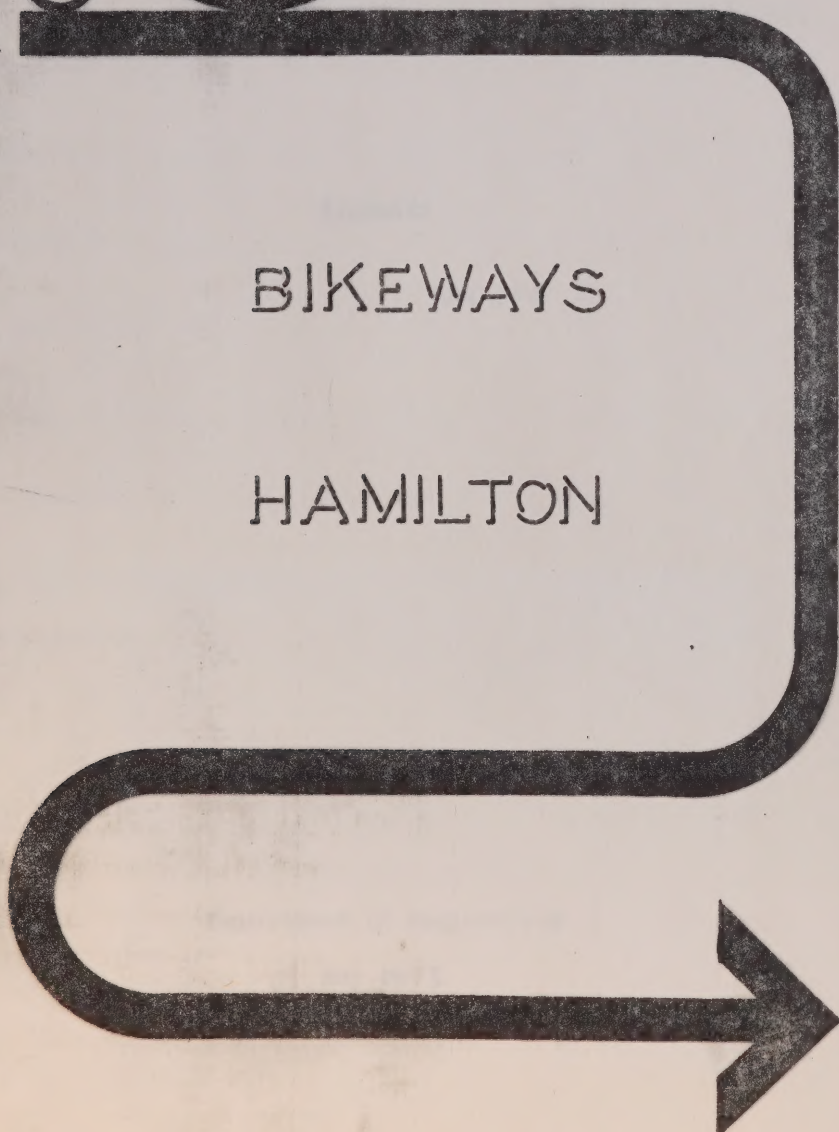
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SUMMARY

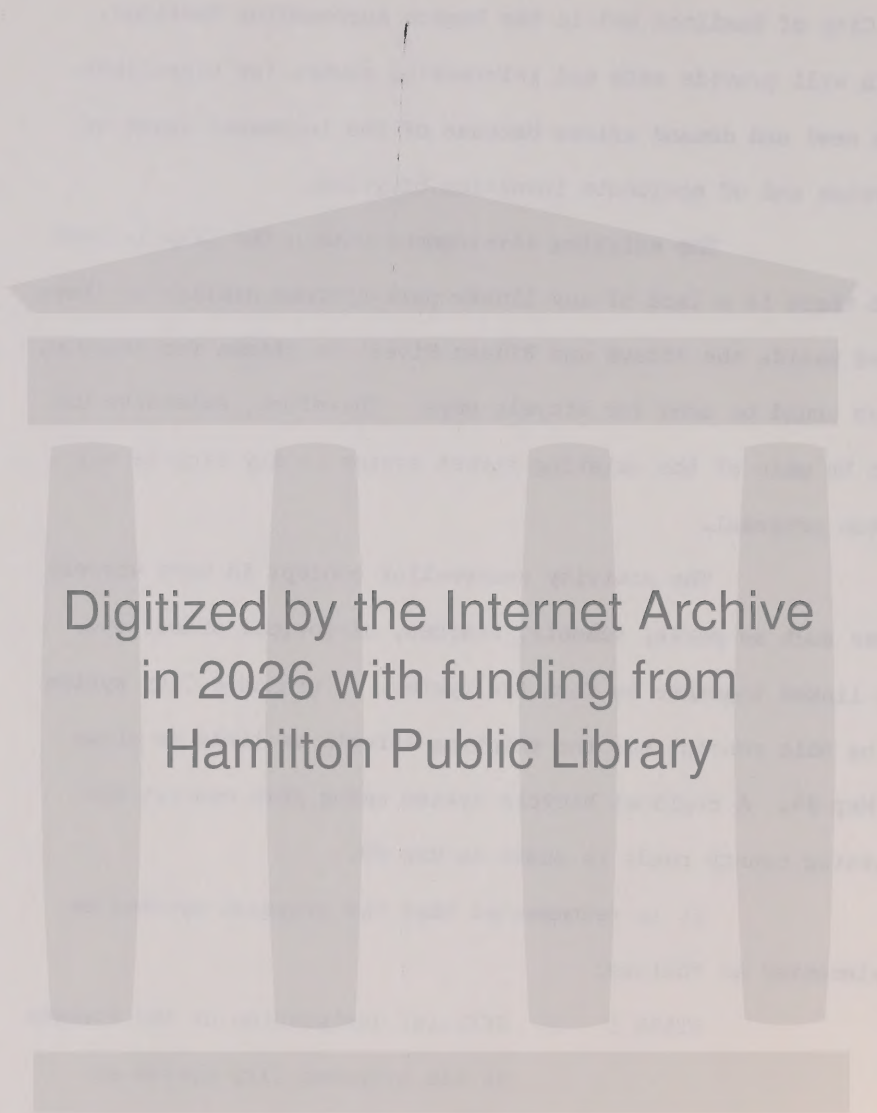
There is a need and demand for bicycle ways in the City of Hamilton and in the Region surrounding Hamilton, which will provide safe and interesting routes for bicyclists. This need and demand arises because of the increased usage of bicycles and of accidents involving bicycles.

The existing development within the City is such that there is a lack of any linear park systems similar to those found beside the Ottawa and Rideau Rivers in Ottawa for example, which could be used for bicycle ways. Therefore, extensive use must be made of the existing street system in any bicycle way system proposal.

The activity centre-link concept is used whereby areas such as parks, schools, beaches, historical sites, etc. are linked together to form the system. A proposed City system using this concept and the existing streets as links is shown on Map #4. A regional bicycle system using this concept and existing county roads is shown on Map #8.

It is recommended that the proposed systems be implemented as follows:

- STAGE I
- 1) Official designation of the streets in the proposed City system as shown on Map #4.
 - 2) Preparation of a brochure showing the system to be made available to the public.
 - 3) Other associated advertising.



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STAGE II 1. Achieve co-ordination and co-operation with local and Regional authorities and departments such as the Hamilton Region Conservation Authority, Royal Botanical Gardens, etc., with the purpose of obtaining official designation of the Regional proposal.

STAGE III A detailed study to determine:

1. The need and feasibility of physical improvements to the system as implemented in Stage 1.
2. The feasibility of development within activity centres.
3. Provision of markers (signs) along the City Streets.
4. To provide estimates of costs, staging and financing with respect to 1 and 2 of Stage III.

5. To provide long range recommendations.

Priorities for this study should include the construction of exclusive bicycle rights-of-way along the following streets:

- a) Cootes Drive from McMaster University to City Limits.
- b) York Boulevard from Dundurn Castle to Royal Botanical Gardens.
- c) Mountain Brow Boulevard from Oakcrest Avenue to Albion Falls.
- d) Greenhill Avenue extension from Rousseau Road to Mount Albion Road.

and the provision of parking and locking facilities in the downtown area.

STAGE IV

Approval and implementation of the

recommendations determined in Stage III.

STAGE II and III may be conducted concurrently.

INTRODUCTION

During recent years there has been an increase in the usage of bicycles for recreational purposes. Coincidental with this increased usage has been an increase in accidents. Also, predictions indicate that bicycle use is going to continue to grow in popularity.

In view of the existing situation, it is evident that there is a need to provide safe and interesting bicycle ways for bicyclists in Hamilton.

The purpose of the following discussion is to review the existing situation in Hamilton and area, assess the problems, and provide some recommendations with respect to the implementation of a bicycle way system.

EXISTING SITUATION

At present, there are no official bicycle routes or policies concerning the use of City streets by bicyclists. The bicycle population uses the existing street system in a rather random manner. This creates many problems, particularly with cyclists using high volume arterial streets during rush hours.

Other Cities such as Ottawa, Winnipeg, and Toronto have undertaken programmes to provide bicycle routes. Hamilton is in a rather unique situation in terms of providing bicycle ways compared to these other Cities, however, it is not an enviable position.

The Cities of Ottawa and Winnipeg are criss-crossed by rivers whose banks are parkland. This provides a 'linear' park system of relatively flat terrain which is ideally suited for bicycle routes.

Hamilton has, certainly, a number of interesting geographical features, however, the existing state of development makes them in most cases, unsuitable prospects for bicycle ways.

For example, the Bay shoreline is unsuitable because of the existing development, the Chedoke Valley because of Highway 403 and the green belt along the base of the escarpment because of the topography and the existing development, (rail lines and mountain access roads).

It would therefore be necessary to make extensive use of the existing street network in any bicycle way proposal.

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Another rather unique feature of the City is that it exists at two very distinct levels. An integrated upper and lower City bicycle way system then becomes a difficult proposition because access roads are both of steep grade and carry sufficiently high volumes of traffic to make them unsuitable for bicycle usage.

In spite of these constraints, there are a number of areas of interest that may be integrated into a bicycle way system using existing City streets. A Regional system is also possible using activity centres of the Hamilton Region Conservation Authority and the Royal Botanical Gardens.

GENERAL CONSIDERATIONS

There are a number of general warrants that should be considered in the design of a bicycle way system. They are as follows:

1. Bicycle ways should be located in areas promising a high degree of utilization of the bicycle ways.
2. The highest bicycle "population" can be expected in residential areas where comparatively easy physical access to bicycle storage such as garages, sheds and basements is available. Single family dwellings and row houses fall into this category, apartment blocks may not.
3. The bicycle ways should lead if possible to activity centres such as beaches, picnic grounds, horticultural display areas, schools, employment centres, etc.
4. Between origins and destinations, as described above, the bicycle ways should introduce the bicyclists where possible to interesting land forms, variety in vegetative cover, water courses and historic sites. This can make it visually worthwhile to ride just a segment of the bicycle system.

5. In order to avoid the monotony of long tangents the bicycle way should follow a curvilinear alignment in harmony with the topography and existing tree cover. Supplementary planting may enhance the overall appearance and serve as a visual or noise buffer.
6. Pleasant views can be emphasized by leading the bicycle way into their direction for a short distance. A conscious effort should be made to leave a significant amount of vegetation in its primitive state. This is especially effective along riverbanks and old hedge rows where grass cutting and underbrush clearing may remove distinct characteristics.
7. Most bicycle ways should be interconnected within a comprehensive system. Where direct connection is not possible, parts of a path and street system may be utilized as a link. However, arterial roads should be avoided because bicyclists are incompatible with high speed, high volume traffic.
8. Loops within a system would enable those who are out for a ride of several miles to return by a different route. This could offer several subsystems to the user and so make the overall system more attractive.
9. The usefulness of the loops depends on the successful match of their lengths to the length of the average pleasure ride on a bike. This length is estimated to be between 3 and 6 miles. The estimate excludes the habits of advanced bike riders as well as those of beginners. (The advanced bicyclist can travel several loops while the beginner can travel part of a loop and return via the same route.)

10. Entry points to the bicycle way system will be planned in some cases, while in others they will happen as a result of the bicycle way crossing a street. Existing desire lines should be considered.
11. Each section in the overall system should have a name distinctive of the locality the bicycle way runs through. The name should be posted along the bicycle way to identify the section. Where streets are used as part of the bicycle way system, the signing should continue along the street. Maps and displays should indicate the various routes and sections to the users.

ACTIVITY CENTRES

A number of areas exist throughout the City and Region that could be suitably defined as activity centres and incorporated into a bicycle way system.

Activity centres in the lower part of the City include the following:

1. Rock Gardens
2. Dundurn Park
3. Victoria Park
4. Eastwood Park
5. Mountain Reservoir
6. Chedoke Park
7. Princess Point
8. Churchill Park
9. McMaster University
10. Central Business District

11. Gage Park
12. Red Hill Creek Valley
13. Viscount Montgomery School
14. Roxborough Park School
15. Confederation Park

Activity Centres in the upper part of the City include the following:

16. Scenic Drive
17. Holbrook School
18. Park - Upper Paradise Road
19. Chedoke School
20. Buchanan Park
21. Hill Park School
22. Eastmount Park
23. Sam Lawrence Park
24. Mountain Park
25. Sherwood Heights School
26. Albion Falls

Activity centres in the Region include the following:

27. Areas of the Region Conservation Authority to include:
 - a) Greensville
 - b) Crooks Hollow
 - c) Tews Falls
 - d) Valens Dam
 - e) Websters Falls
 - f) Tiffany Falls

28. Old Ancaster Mill
29. Areas of the Royal Botanical Gardens
30. Dundas
31. La Salle Park
32. Connections to the Bruce Trail System

SYSTEM DESCRIPTION

The proposed City system consists of two sub-systems, one in the upper part of the City and one in the lower part of the City, the two being connected along Mount Albion Road.

Map #2 shows the activity centres of the proposed system. Map # 3 shows the conceptual link corridors connecting the activity centres.

The system for the most part routes bicyclists between activity centres using the residential streets of the City. The strip maps # 5-1 to 5-19 show the actual streets, in each corridor, to be used in the system. These streets were selected in the field, by inspection, in accordance with the criteria given in the general considerations.

The route, as presented, provides considerable exposure to interesting land forms, water courses, and historic sites.

Utilization of the street system allows a maximization of route length with a minimum of cost. This is particularly advantageous in the initial implementation of the system since there is the possibility that the demand for bicycle facilities may not increase to the point where large scale physical alterations and exclusive path construction is warranted.

It is also proposed that the City system will form the nucleus of a Regional bicycle way system using existing county roads. Map # 7 shows the activity centres of the Regional proposal, Map # 8 shows the proposed roads to be used as connecting links and Map # 9 shows the Regional system and its relationship to the Hamilton system.

FUTURE CONSIDERATIONS

A number of improvements should be considered for the future and should be the basis of a more detailed study.

- (a) Activity Centres: In some of the areas noted earlier and defined as activity centres, it may be feasible to develop paths internally (for example Princess Point and Albion Falls area). Space availability, topography, provision of sanitary facilities, locking facilities, the co-operation of other concern authorities, such as the Royal Botanical Gardens and the Hamilton Region Conservation Authority, Parks Board etc. and other parameters that may affect the feasibility of this type of development should be considered in a future study.
- (b) Link Physical Improvements: There are several alterations and regulatory measures that should be considered to achieve a safer environment for cyclists using existing streets:
 - 1. A separate cycle path may be constructed beside the street.
 - 2. Existing sidewalks may be widened for combined cycle and pedestrian usage.

STAGE III A detailed study to determine:

1. The need and feasibility of physical improvements to the system as implemented in Stage 1.
2. The feasibility of development within activity centres.
3. Provision of markers (signs) along the City streets.
4. To provide estimates of costs, staging and financing with respect to 1 and 2 of Stage III.
5. To provide long range recommendations.

Priorities for this study should include the construction of exclusive bicycle rights-of-way along the following streets:

1. Cootes Drive from McMaster University to City limits.
2. York Boulevard from Dundurn Castle to Royal Botanical Gardens.
3. Mountain Brow Boulevard from Oakcrest Avenue to Albion Falls.
4. Greenhill Avenue extension from Rousseau Road to Mount Albion Road.

and the provision of parking and locking facilities in the downtown area.

STAGE IV

Approval and implementation of the recommendations determined in Stage III. Stage II and III may be conducted concurrently.

CONCLUSIONS AND RECOMMENDATIONS ...cont'd

It is therefore recommended:

- 1) That approval be given for Stage I,
 - 1) Official designation of the streets in the proposed City system as shown on Map #4.
 - 2) Preparation of a brochure showing the system to be made available to the public.
 - 3) Other associated advertising as soon as possible.
- 2) That Stage II,
 - 1) Achieve co-ordination and co-operation with local and regional authorities and departments such as Hamilton Region Conservation Authority, Royal Botanical Gardens, etc., with the purpose of obtaining official designation of the regional proposal.and Stage III, a detailed study to determine:
 - 1) the need and feasibility of physical improvements to the system as implemented in Stage I
 - 2) the feasibility of development within activity centres
 - 3) provision of markers (signs) along the City streets
 - 4) to provide estimates of costs, staging and financing with respect to 1 and 2 of Stage III

CONCLUSIONS AND RECOMMENDATIONS ... cont'd

- 5) To provide long range recommendations to begin sometime during 1973 with the objectives of designating and signing as much of the Region proposal as possible for use in 1974 and formulating proposals and recommendations for the short range priorities of Stage III.

That, in the meantime, until long range policies and recommendations are formulated, with respect to physical alterations, improvements and system additions; consideration be given in any roadway projects to the feasibility and desirability of leaving allowance for future bicycle ways (for example York Street and Greenhill Avenue extension).

LIST OF MAPS AND PHOTOGRAPHS

Map # 1 System System

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Map # 2 System Activity Outline

Map # 3 Characterized Position System

Map # 4 Proposed Position Display with System

Map # 5 Map Map (for study map)

Study Map Proposed Position System (2)

Photographs Proposed

MAPS AND PHOTOGRAPHS

Map # 6 System Activity Outline

Map # 7 Proposed Position Display

Map # 8 Proposed Position with Study Map System

Notes: Map # 5 has been deleted

LIST OF MAPS AND PHOTOGRAPHS

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Photographs	Proposed Hamilton System (3)
Map # 7	Region Activity Centres
Map # 8	Proposed Region System
Map # 9	Proposed Region and Hamilton System

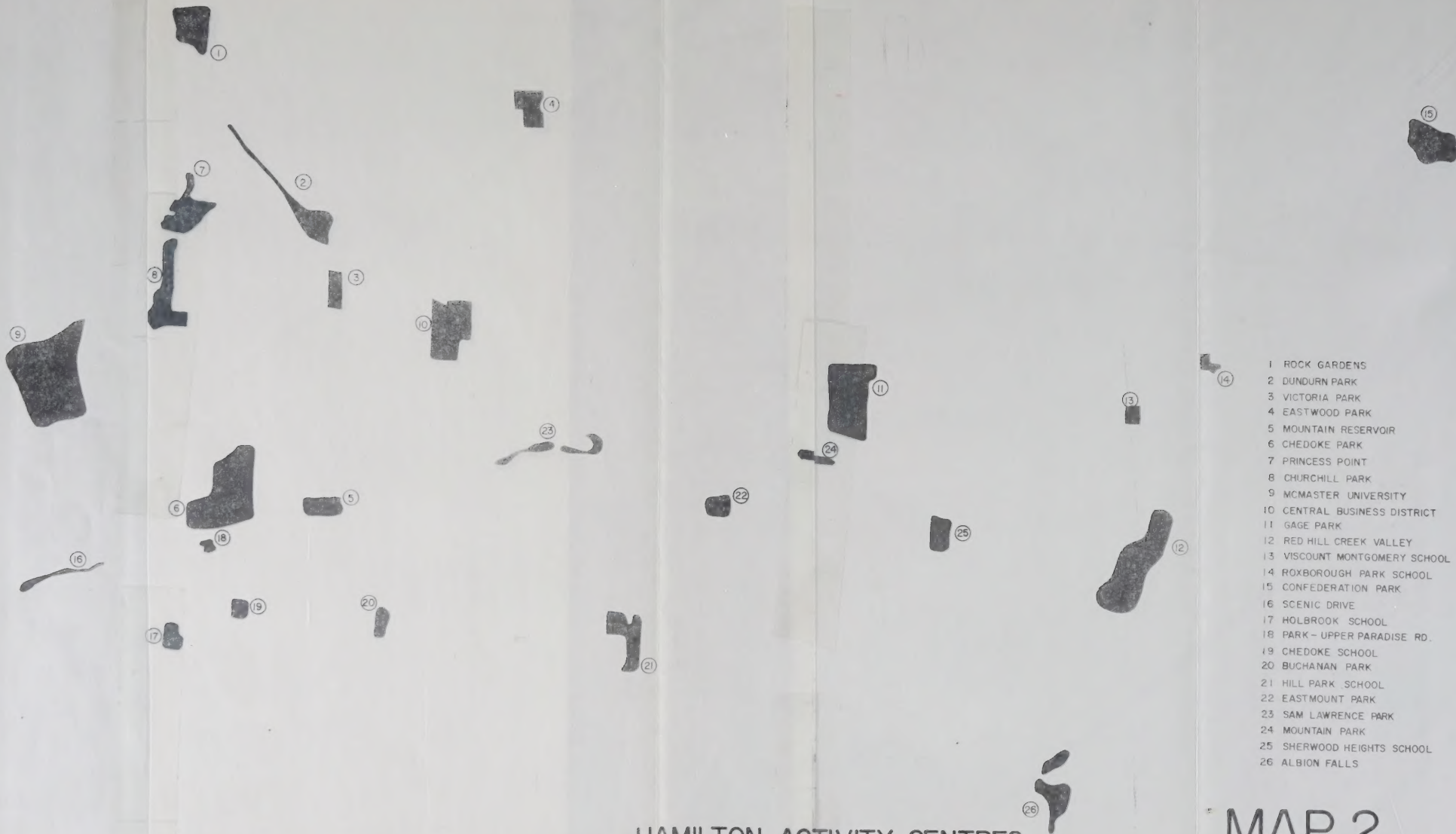
Note: Map # 6 has been deleted



OTTAWA SYSTEM



OTTAWA SYSTEM

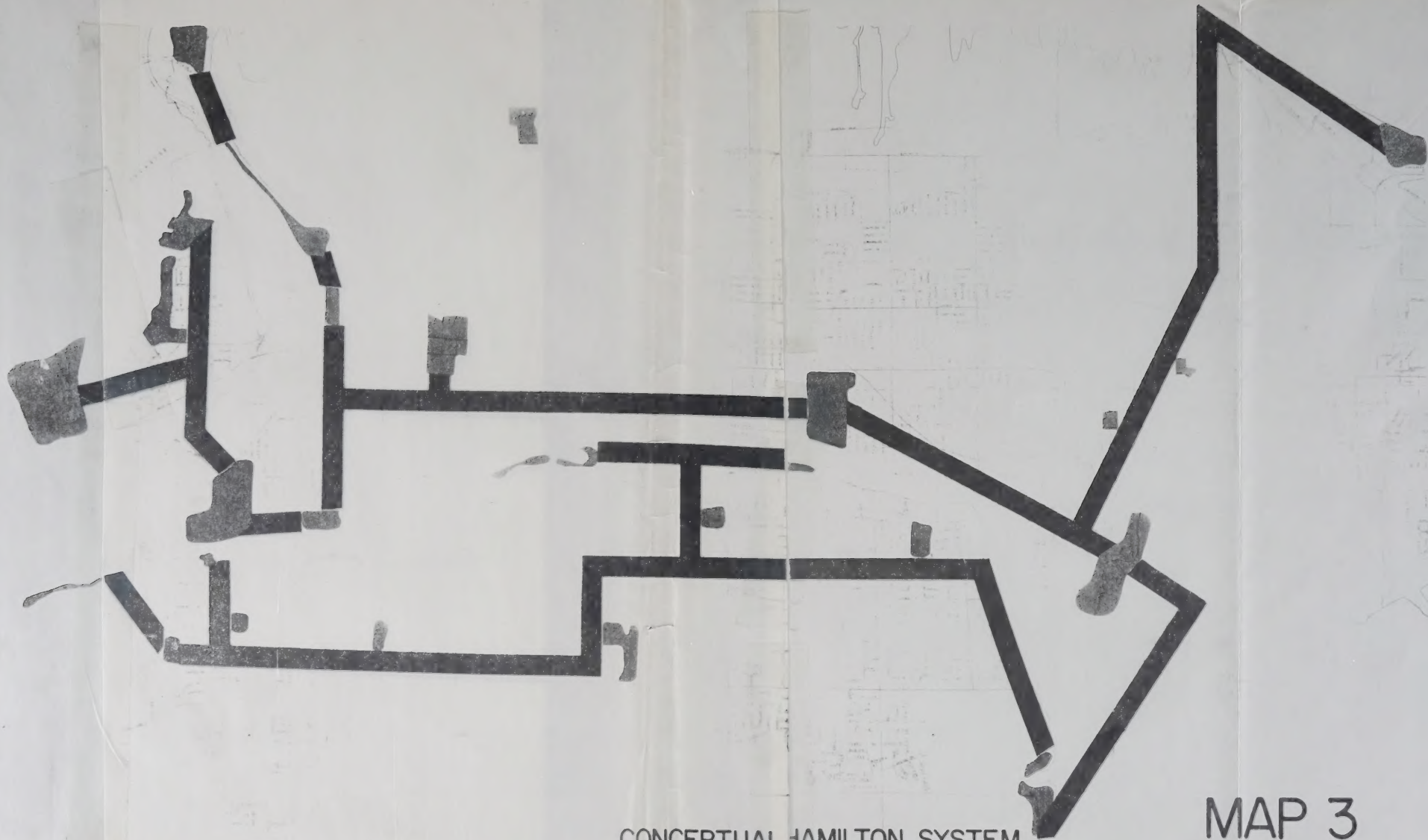


- 1 ROCK GARDENS
- 2 DUNDURN PARK
- 3 VICTORIA PARK
- 4 EASTWOOD PARK
- 5 MOUNTAIN RESERVOIR
- 6 CHEDOKE PARK
- 7 PRINCESS POINT
- 8 CHURCHILL PARK
- 9 MCMASTER UNIVERSITY
- 10 CENTRAL BUSINESS DISTRICT
- 11 GAGE PARK
- 12 RED HILL CREEK VALLEY
- 13 VISCOUNT MONTGOMERY SCHOOL
- 14 ROXBOROUGH PARK SCHOOL
- 15 CONFEDERATION PARK
- 16 SCENIC DRIVE
- 17 HOLBROOK SCHOOL
- 18 PARK - UPPER PARADISE RD.
- 19 CHEDOKE SCHOOL
- 20 BUCHANAN PARK
- 21 HILL PARK SCHOOL
- 22 EASTMOUNT PARK
- 23 SAM LAWRENCE PARK
- 24 MOUNTAIN PARK
- 25 SHERWOOD HEIGHTS SCHOOL
- 26 ALBION FALLS

HAMILTON ACTIVITY CENTRES

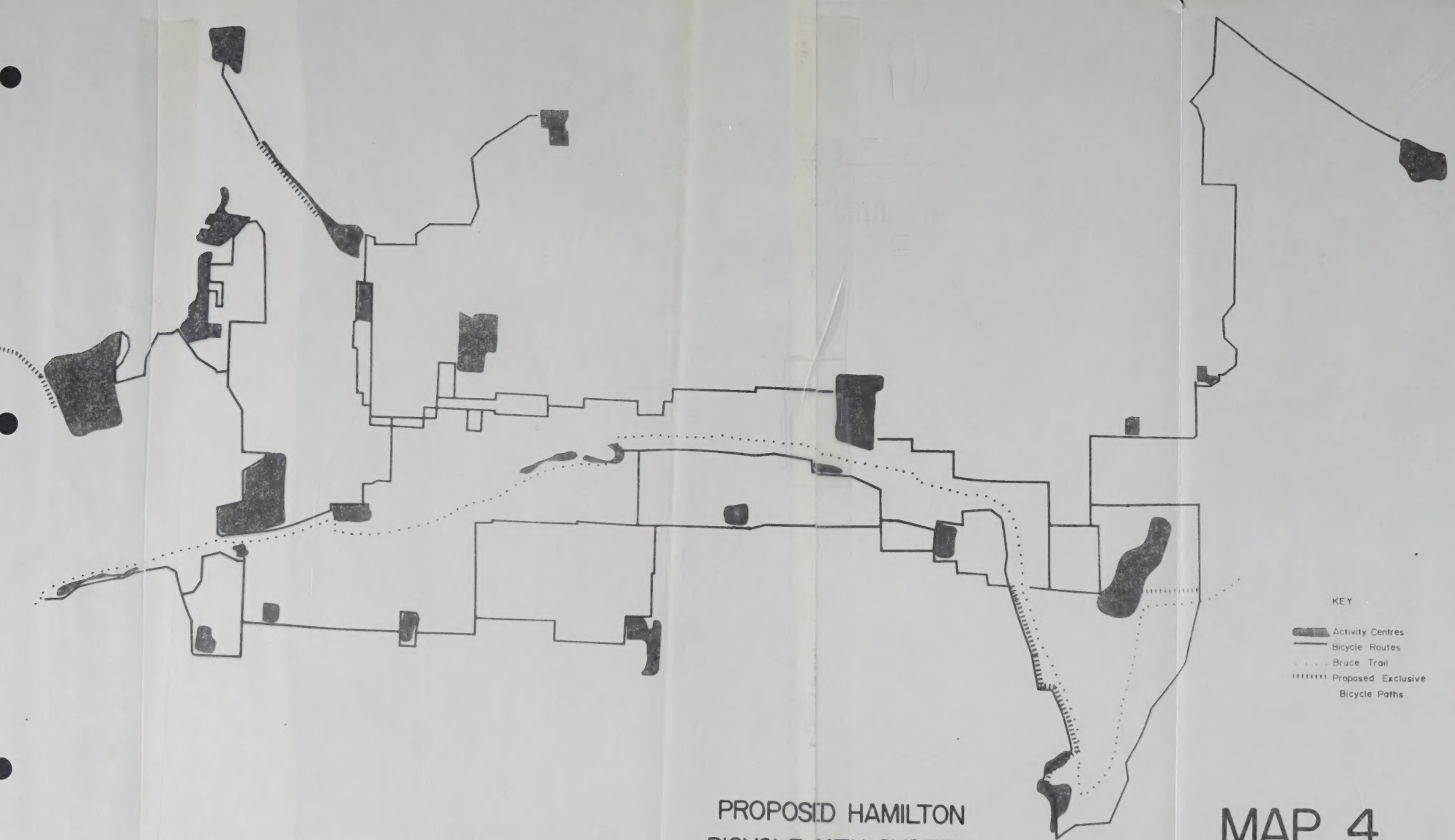
MAP 2





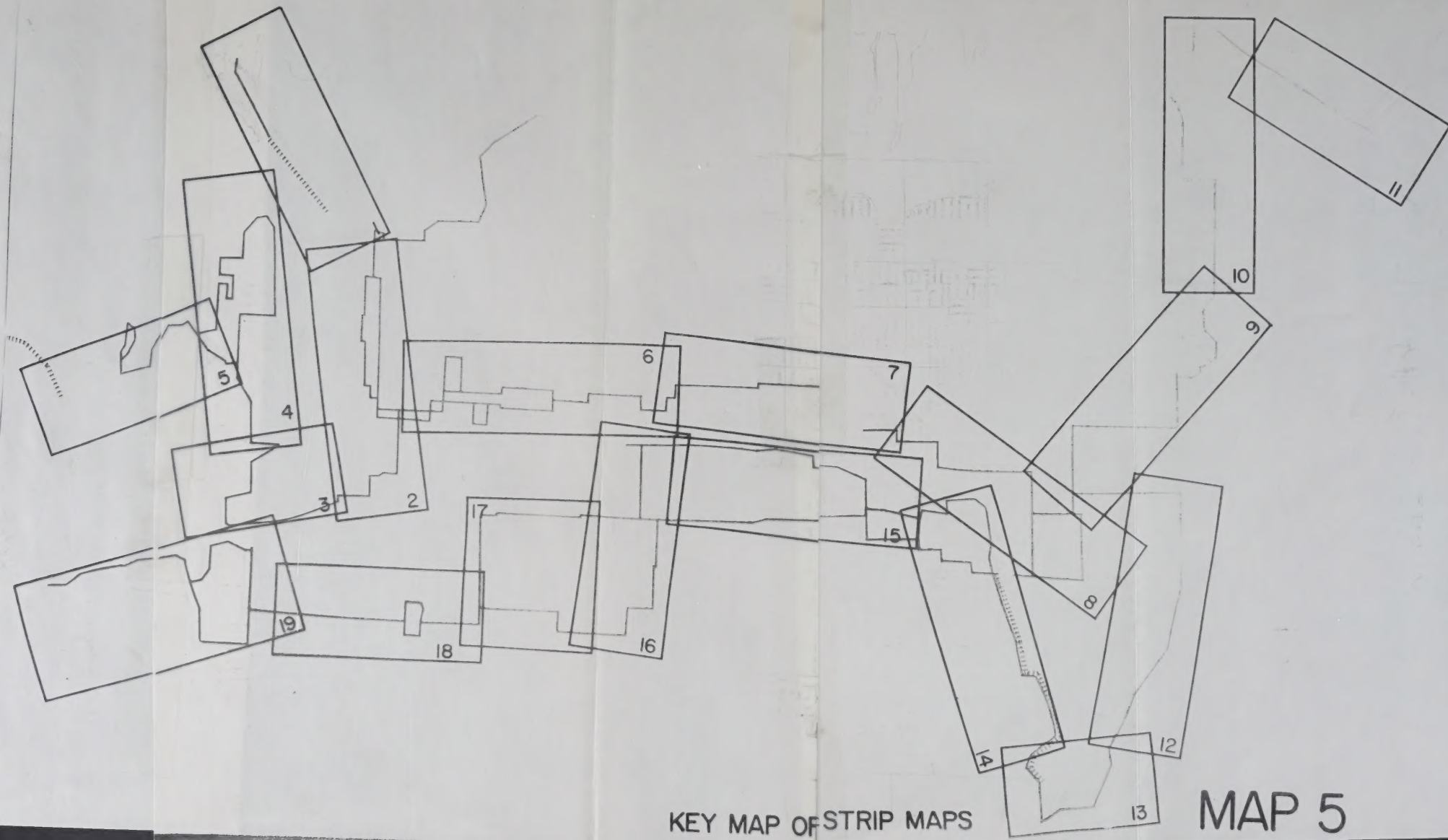
CONCEPTUAL HAMILTON SYSTEM

MAP 3



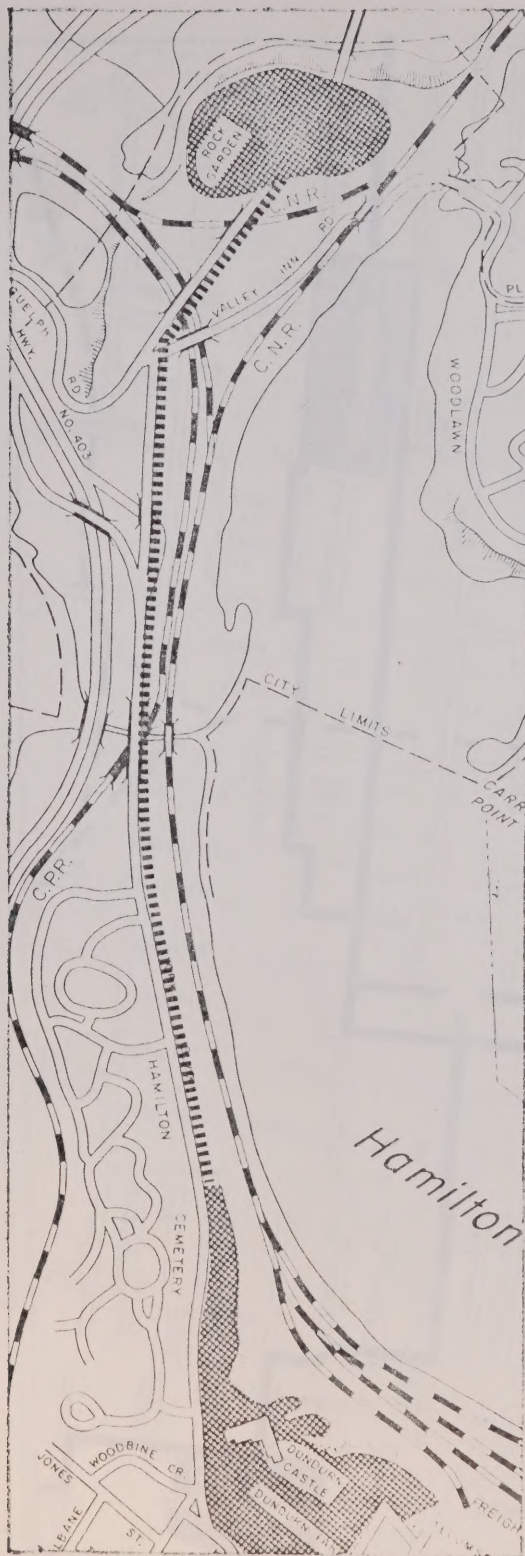
PROPOSED HAMILTON
BICYCLE PATH SYSTEM

MAP 4



KEY MAP OF STRIP MAPS

MAP 5



Proposed Exclusive
Bicycle Paths



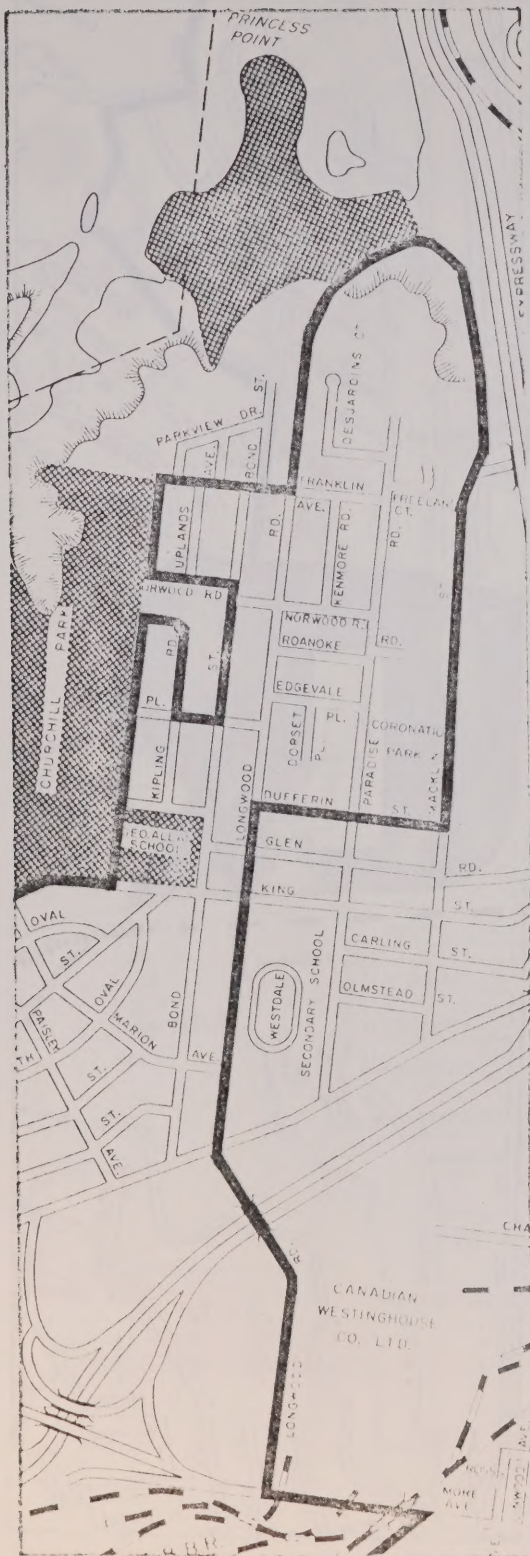
MAP 5-2



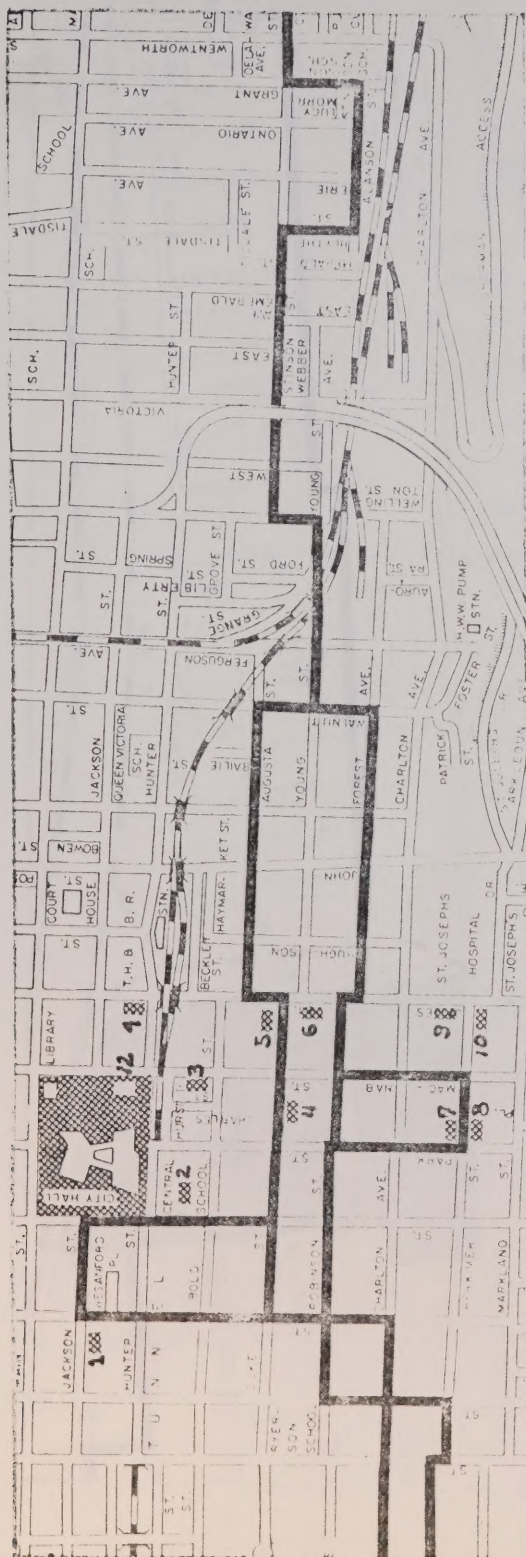


MAP 5-3





MAP 5-4



VICTORIAN ARCHITECTURE

1. 168 Jackson St. W.
2. Central Public School
3. Stone Manse - MacNab St.
4. St. Pauls Presbyterian Church
5. Duke St. double house
6. The Castle - James St.
7. 46 Herkimer St.
8. Stone Manse - Herkimer St.
9. 250 James St. S.
10. 252 James St. S.
11. 'Sandyford Place' 35-43 Duke St.
12. 'Whitehern' McQueston House

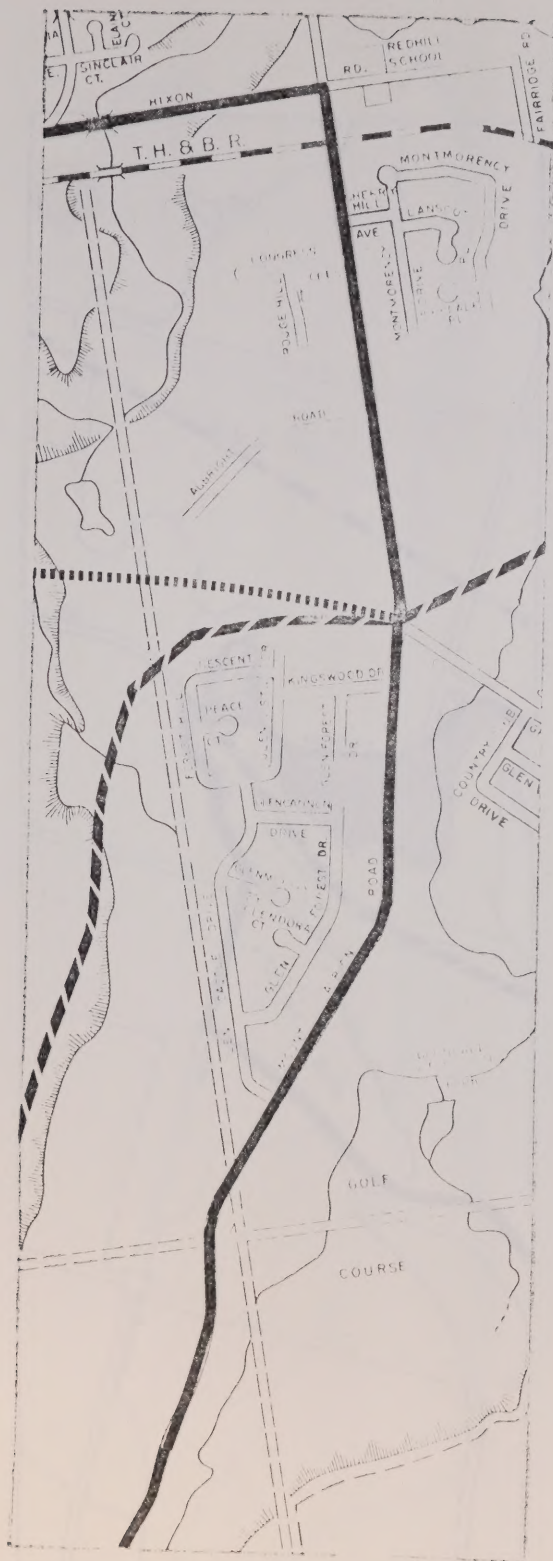




MAP 5-8







--- Bruce Trail
..... Proposed Exclusive
Bicycle Path

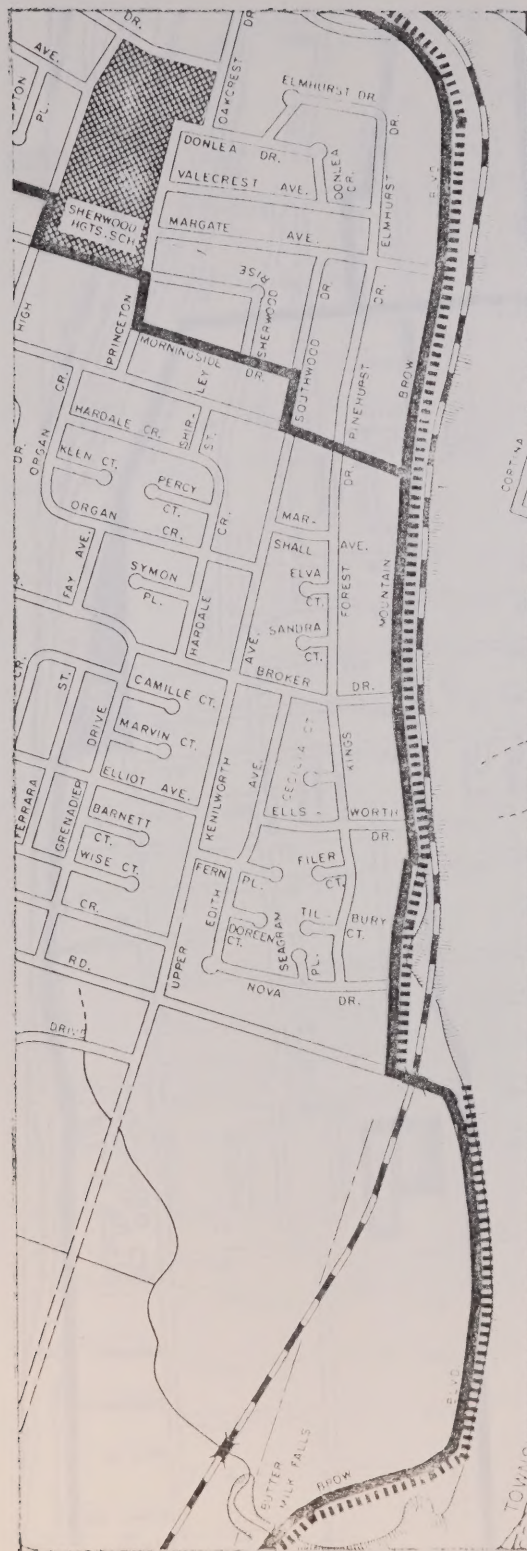
MAP 5-12



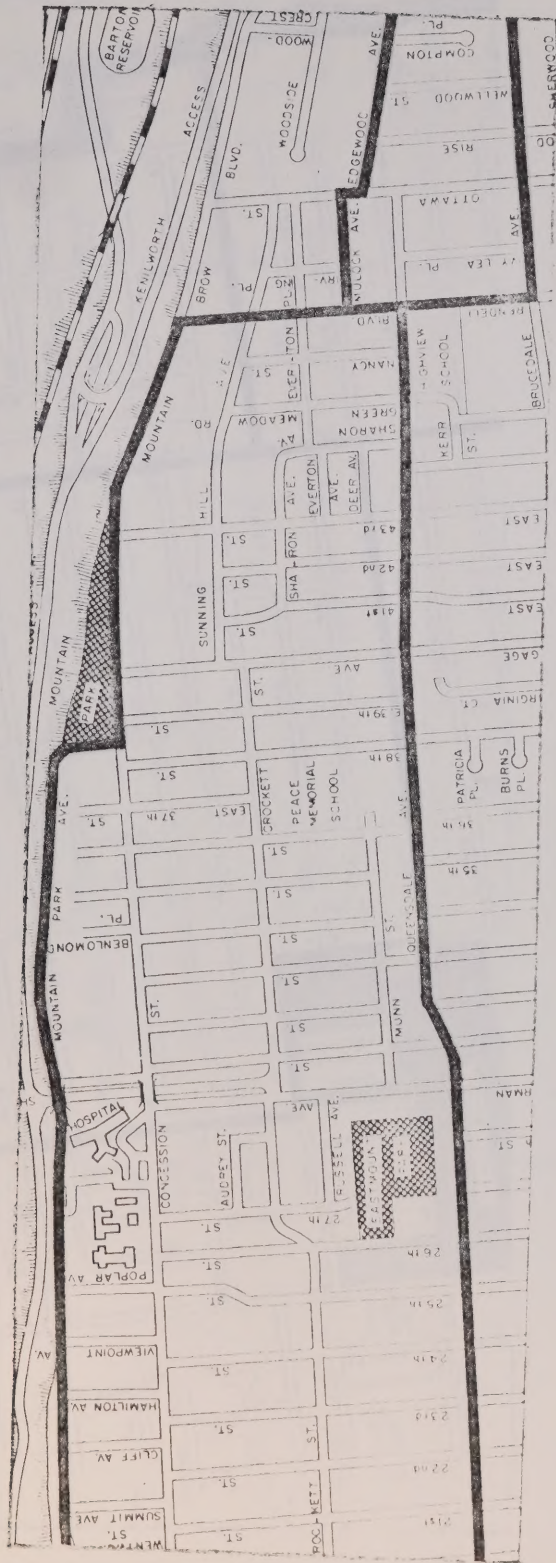
----- Bruce Trail



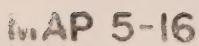
THE NEW YORK PUBLIC LIBRARY



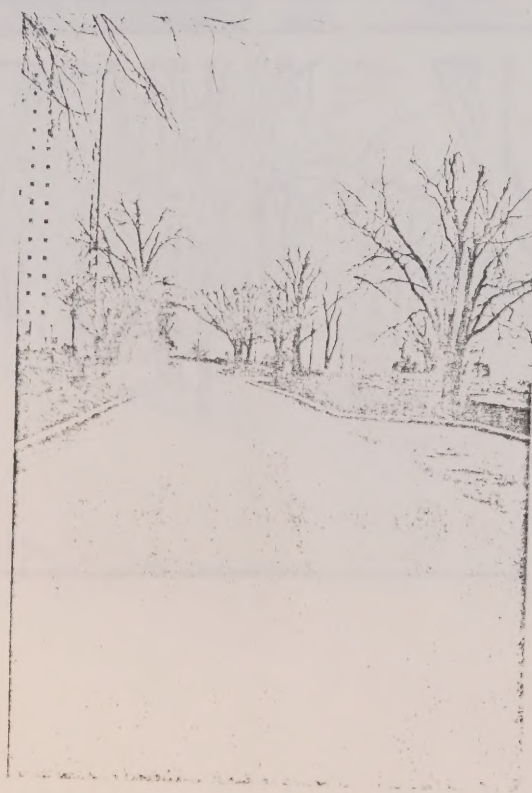
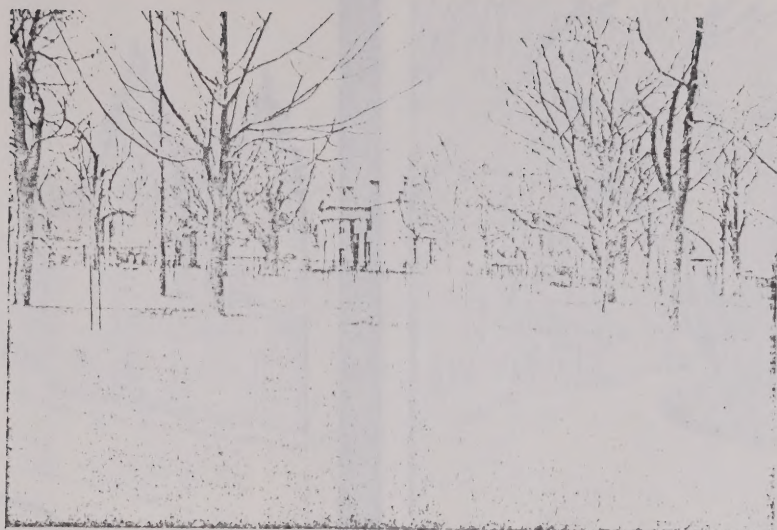
Proposed Exclusive
Bicycle Path



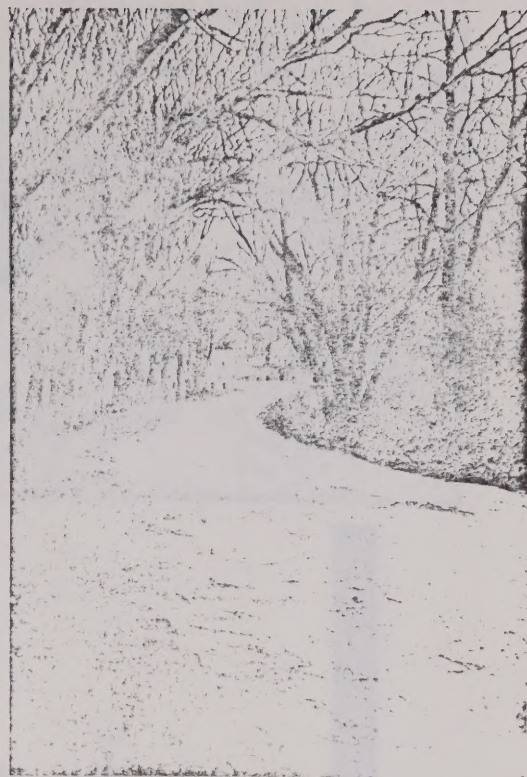
MAP 5-15







TYPICAL STREETS AND ACTIVITY CENTRES
PROPOSED HAMILTON, ONT.



TYPICAL STREETS AND ACTIVITY CENTRES
PROPOSED HAMILTON SYSTEM



TYPICAL STREETS AND ACTIVITY CENTRES
PROPOSED HAMILTON SYSTEM



PROPERTIES OF THE HAMILTON
REGION CONSERVATION AUTHORITY

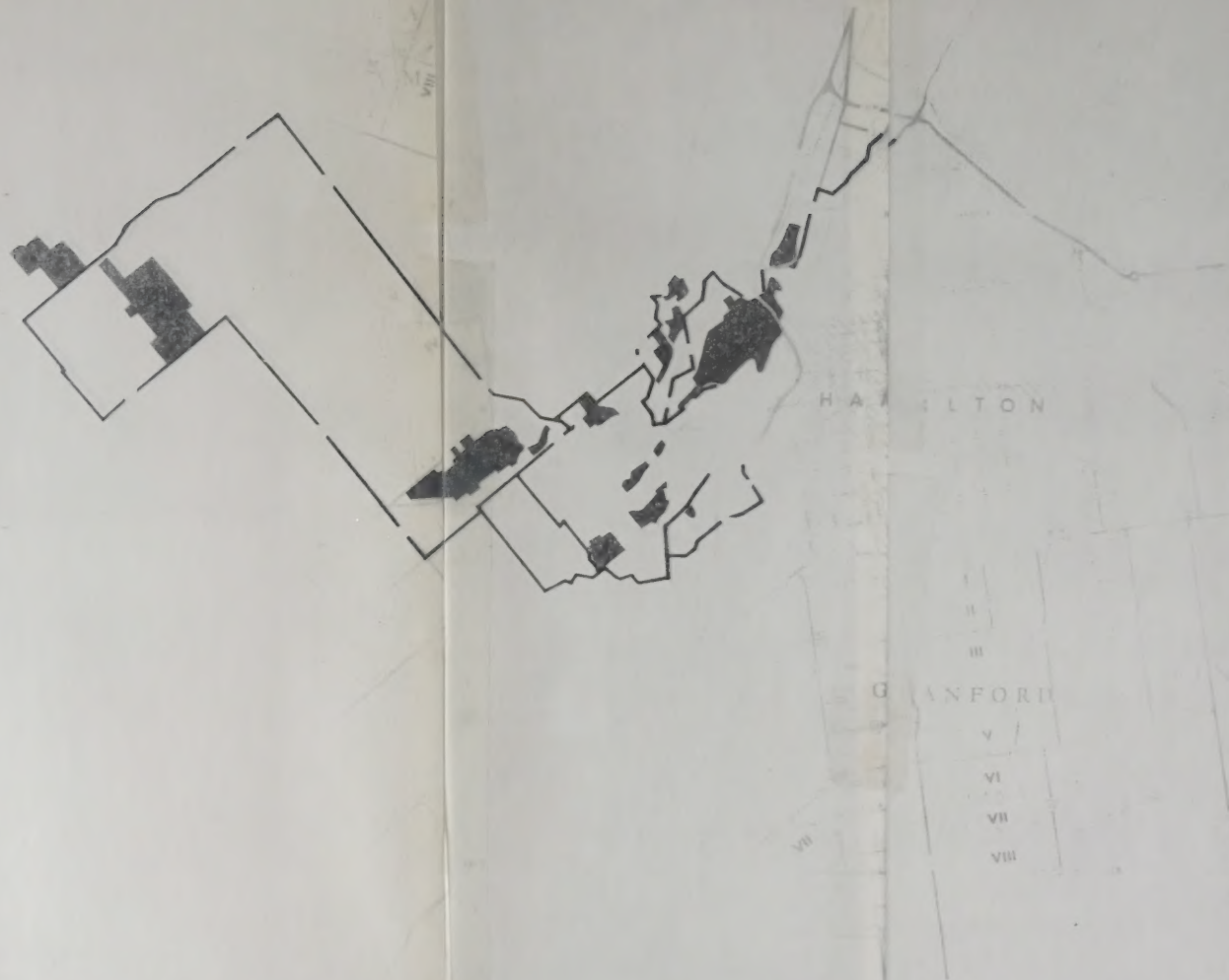
- 1 Valens Lake
- 2 Beverly Swamp
- 3 Christie Lake
- 4 Crooks Hollow
- 5 Spencer Gorge Wilderness Area
- 6 Niagara Escarpment (Valley Rd)
- 7 Spring Creek
- 8 Resource Management Centre
- 9 Dundas Valley
- 10 Tiffany Falls

PROPERTIES OF THE ROYAL
BOTANICAL GARDENS

- 11 Rock Chapel Sanctuary
- 12 Valley Road Properties
- 13 Cootes Paradise Sanctuary
- 14 Hendrie Park

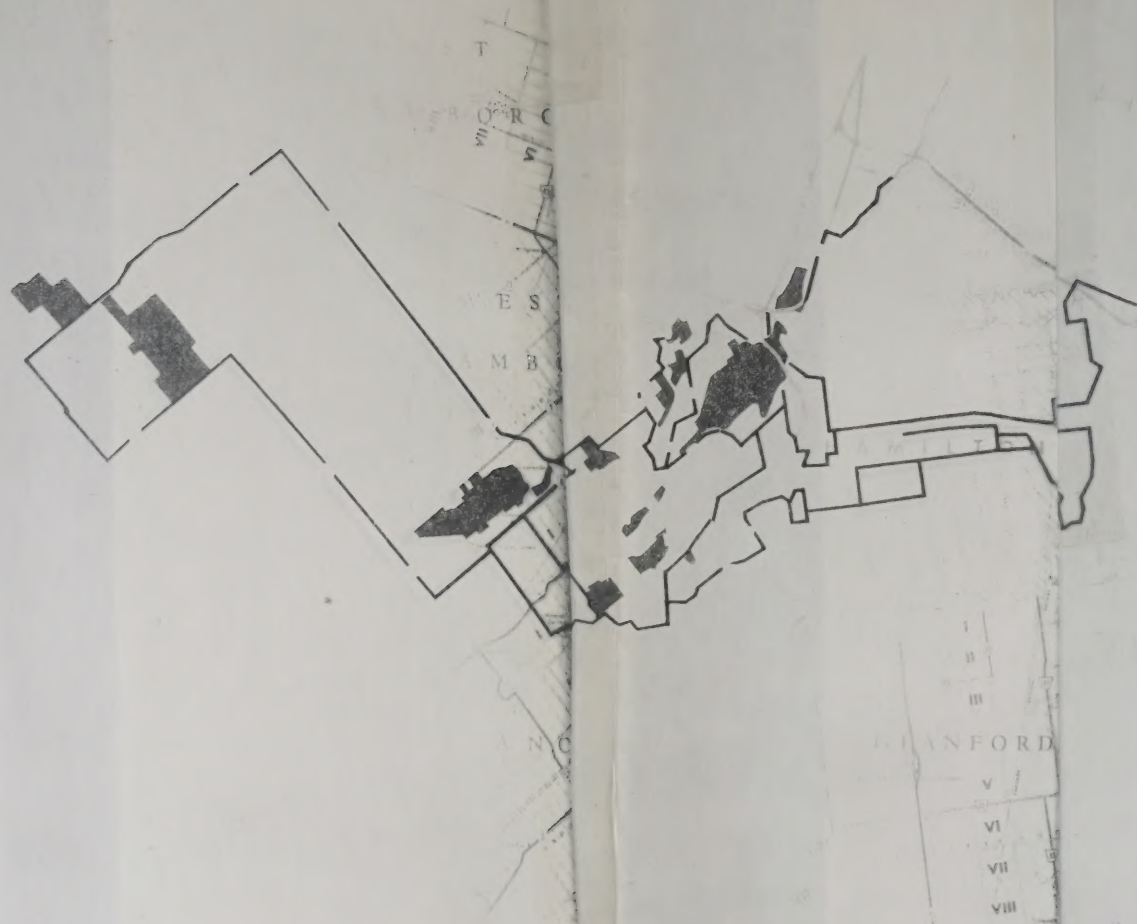
REGION ACTIVITY CENTRES

MAP 7



PROPOSED REGION SYSTEM

MAP 8



PROPOSED
HAMILTON AND REGION SYSTEM

APPENDIX

DESIGN INFORMATION

When a concrete foundation is to be placed in a trench, the trench should be excavated to the required depth and width, and the bottom should be compacted. The trench should be lined with a material that will prevent water from entering the trench.

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When a concrete foundation is to be placed in a trench, the trench should be excavated to the required depth and width, and the bottom should be compacted. The trench should be lined with a material that will prevent water from entering the trench.

DESIGN INFORMATION

1. The foundation should be placed in a trench that is at least 12 inches wide and 18 inches deep. The trench should be lined with a material that will prevent water from entering the trench.

DESIGN INFORMATION

2. The foundation should be placed in a trench that is at least 12 inches wide and 18 inches deep. The trench should be lined with a material that will prevent water from entering the trench.

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TYPE OF USE

One-way exclusive bicycle paths:

Where a separate pedestrian path or sidewalk is located nearby and where a bicycle return route is also in close proximity (e.g. location between sidewalk and street surface on each side of the street).

Two-way exclusive bicycle paths:

Where separate pedestrian path or sidewalk is located nearby (e.g. independent alignment along parkway also served by separate footpath).

Combination two-way bicycle and footpath

- a) New construction in areas not previously serviced by a footpath. Alignment independent of parkways where possible.
- b) Existing footpaths converted by widening, realignment and reconstruction of road crossings and sufficient clearances.

Combination parkway and bicycle path:

Any parkway with a legal speed of 35 m.p.h. or less can be used by both cars and bicycles without abnormal danger to bicyclists. Those parts of a parkway used as connecting links in the path system could be signed by suitable guide signs.

Combination Street and bicycle path:

Local or collector streets with a legal speed limit of 30 m.p.h. or less can be used by both cars and bicycles without abnormal danger to bicyclists. Arterial roads with high volumes of traffic should be avoided if possible. Those parts of streets used as connecting links in the path system could be suitably signed.

Competitive Tracks: A bicycle race track consisting of a loop can be used to promote bicycling and bicycle racing. The loop should have sharp, super-elevated curves and a length suitable for racing events. Facilities for spectators such as parking, toilet facilities, concessions might also be considered.

Park benches should be provided along existing and proposed paths. These can be integrated into overlooks, points of interest, etc.

Design Standards

Width

A bicycle is approximately 2 feet wide. Since a bicycle does not move in a straight line as a four-wheeled vehicle does, additional width has to be allowed for the swinging movement caused by the effort to balance the bike. The total effective width of one lane should be $3\frac{1}{2}$ feet.

A two way path must be constructed at least 2 lanes or 7' in width. A one-lane path allows only traffic with no provision for passing and is not generally recommended for a new construction. If bicycle traffic becomes very heavy, a two-lane path can be widened into a three-lane path (10' wide) to accommodate three lanes of traffic.

Existing footpaths to be conveyed into combined-use bicycle and pedestrian paths should be widened to 7' minimum.

Clearance

Fixed objects (e.g. trees) should be clear of the edge of the path proper by at least 1 foot.

Minimum overhead clearance (e.g. at underpasses or under tree branches) is 7 feet. However an overhead clearance of 9 feet is desirable for reasons of visual appearance etc.

Railings should be set back 1' from the edge of the bicycle path to allow for a safety margin because of the proximity of handle bars to the railings.

Where fences have to be crossed the opening must be at least as wide as the path but should preferably be one foot wider on each side.

Grades

Long grades should not exceed 3%. Short grades (up to 300 feet long) should not exceed 4%. Any grade steeper than these will force most bicyclists to push their vehicle.

Long steep grades should not follow a straight alignment.

If topography demands the construction of grades steeper than those described two one-way paths should be used. The downhill path should not be steeper than 6% and its curves should be superelevated. The uphill path can be considerably steeper and shorter, and the distance to push the bike uphill will therefore be reduced considerably.

Alignment and Superelevation

Curves on a bicycle path may be quite sharp, provided they are superelevated.

In regard to superelevation two groups of paths should be distinguished:

- a) Those built to a gradient of 0% to 3%. An average downhill speed of 12 m.p.h. is expected on these segments of bike paths. The sharpest curve may have a radius of 35 feet and must be superelevated at the rate of 0.10 feet per foot. Superelevation ceases at 70 foot radius curves.
- b) Those paths built to a gradient of 4% to 6%. An average downhill speed of 18 m.p.h. is expected on these segments of bike paths. The sharpest curve may have a radius of 80 feet and must be superelevated at the rate of 0.10 feet per foot. Superelevation ceases at 150 foot radius curves.

On steep one-way uphill sections curves may have a radius of less than 35 feet and superelevation is not required.

Surface and Drainage

To be attractive to bicyclists, paths must have a surface which offers smooth riding qualities combined with good frictional resistance to tire slipping. H.L. 3 asphalt offers these qualities (H.L. 6 would give a rough ride while H.L. sand mix may cause tire slipping when the pavement is either wet or covered with a layer of dust). However, a well compacted gravel surface free of potholes is acceptable and often useful as a break in the monotony of the surface.

Bicycle paths are not designed to carry heavy vehicles. 2" of H.L. 3 asphalt over 6" of Granular "A" will in most cases carry a service pickup truck while the subgrade is not saturated with water i.e. June to October. During the remainder of the year heavy vehicles should be kept off the pavement.

The paths can be drained by a cross slope of 0.02 feet per foot. This may be applied according to topography.

Water from a small area adjacent to the bicycle path may drain across the path. Small areas drain fast and little water would be expected to run across the path after a rainstorm. Water from large areas having the tendency to drain across the paths should be collected in swales alongside the paths. Ditches having steep slopes should be avoided.

Signing

Regulatory signs should generally conform to the system of signs advocated by the Canadian Good Roads Association in their Manual of Uniform Traffic Control Devices for Canada, although this manual does not specifically list signs applying to bicycle paths. Symbolic signs are preferred to worded signs.

Bicycle paths are not intended for use by motor vehicles of any kind. This regulation can be enforced only if signs indicate it at all points of entry to the bicycle path system. The sign recommended for this purpose shows the black outline of a bicycle on a white background inside a green circle. This sign should be mounted on a post so that it can be clearly seen by motorists and bicyclists alike.

Because of physical difficulties which would be encountered in widening paths and relocating park benches, not all existing footpaths may be converted to combined use by pedestrians and bicyclists. At points where exclusive footpaths diverge from bicycle paths, signs prohibiting bicycles would clarify the situation. The sign recommended for this purpose shows the black outline of a bicycle on a white background crossed by a red bar inside a red circle. This sign may be mounted on a post or painted on the asphalt of the path. the choice depending on best design.

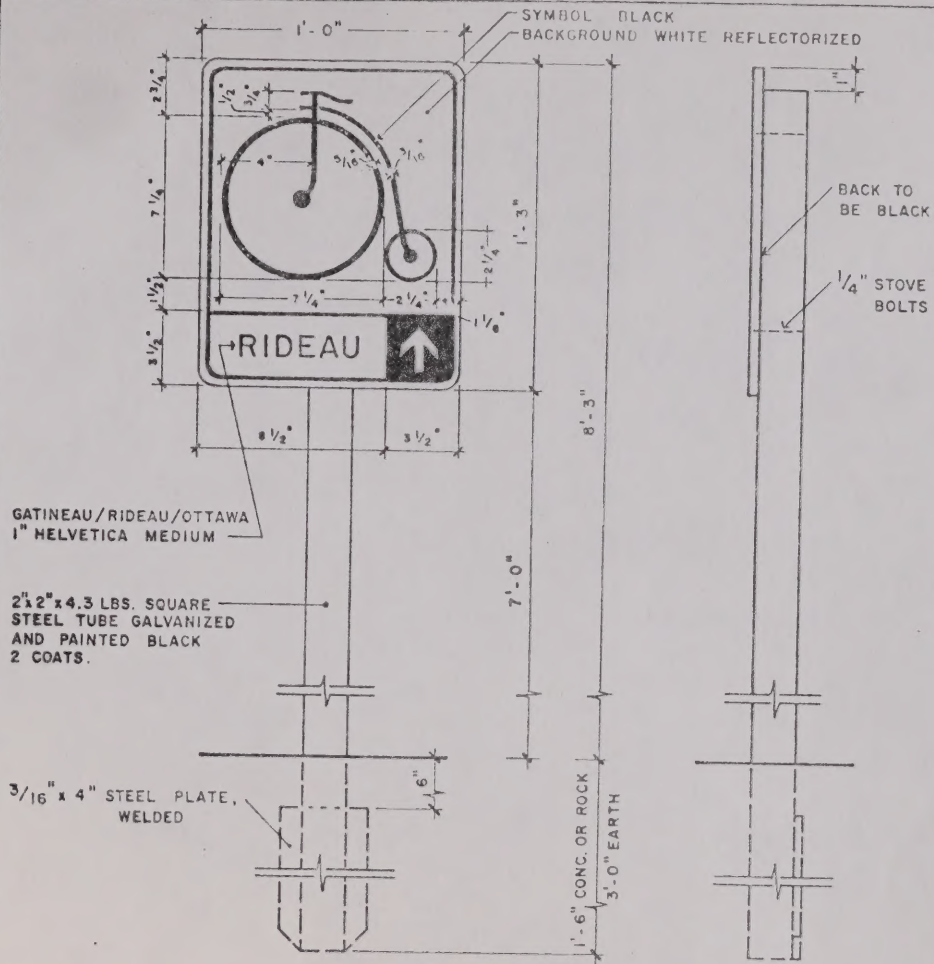
Guide signs indicating the name of a particular section of the path system should be erected at junction points of sections and at all external points of entrance to the system. They could also be used to identify streets forming part of the path system.

Guide signs should be smaller than regulatory signs because their message is not intended for the passing motorist but for the bicyclist travelling at low speed. All guide signs should be erected on posts, most of them underneath the regulatory sign described above, others alone at junctions of different paths. The latter might have to be supplemented by arrows. Names of path sections for guide signs should be distinctive to the area traversed.

Safety

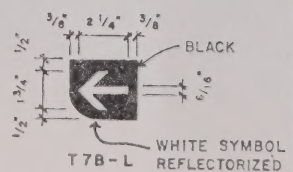
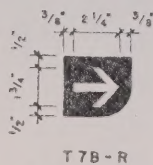
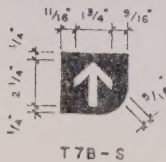
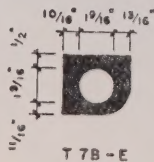
Street crossings at grade constitute a hazard to bicyclists. High volume traffic arteries should be crossed at traffic signals only. Parkways and medium volume streets may be crossed at intersections or at midblock provided the crossing is at right angles and protected by signs on the bicycle path. Freeways must be crossed by means of an overpass or an underpass. An alternative to a separate structure would be to use an existing street overpass or underpass, if this does not have serious disadvantages e.g. dangerous crossings of freeway ramps, high traffic volumes on the street, very long detour, etc.

Bicycle paths adjacent to deep water or very steep slopes warrant a railing to protect riders. Where there is sufficient room between the path and the hazard, dense planting of resilient shrubbery can fulfill the role of the railing.



FRONT

SIDE



CORNER DESIGNATIONS

N C C
NATIONAL CAPITAL COMMISSION



C C C
COMMISSION DE LA CAPITALE NATIONALE

TITLE: Title:

INFORMATION SIGN - BICYCLE PATH

N C C. RESPONSIBILITY: RESPONSABILITE DE LA C.C.N.

D W PETTIT, DIRECTOR

DESIGN ADJUNCT: CONCLU PAR:

PROJECT DESIGN DIVISION

DRAWING NO.: DESSIN NO.

STANDARD
DRAWING

DATE:

JUNE 1971

DRAWING DESIGNED:

P. H. B.

CHECKED: VERIFIEE:

M. J. M. C.

SCALE: ECHELLE:

2" = 1'-0"

3450 - T7B

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25071	-	BLACK / NOIR	-	BG2507
25072	-	BLUE / BLEU	-	BU2507
25078	-	RED / ROUGE	-	BF2507
25075	-	GREEN / VERT	-	BP2507
25074	-	GREY / GRIS	-	BD2507
25073	-	R. BLUE / BLEU R.	-	BB2507
25079	-	X. RED / ROUGE X.	-	BX2507
25070	-	YELLOW / JAUNE	-	BY2507
25077	-	TANGERINE	-	BA2507

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